

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

**EARLY SUCCESSIONAL HABITAT DEVELOPMENT/MANAGEMENT
(Ac)
CODE 647**

DEFINITION

Manage early plant succession to benefit desired wildlife or natural communities.

PURPOSE

- Increase plant community diversity to provide habitat for early successional species.
- Provide habitat for declining species.

CONDITIONS WHERE PRACTICE APPLIES

On all lands that are suitable for the kinds of wildlife and plant species.

CRITERIA

General Criteria

Many species of wildlife prosper at some stage of plant succession less than the climax condition. To achieve this seral stage, an essential knowledge of the species needs is required prior to management activities.

Early successional management will be designed to achieve the desired plant community in density, vertical and horizontal structure, and plant species diversity.

Methods used will be designed to maintain soil erosion quality criteria.

Vegetative manipulation to maximize plant and animal diversity can be accomplished by disturbance practices including: prescribed burning, light disking, mowing, grazing, shearing, commercial or non-commercial timber harvest or a combination of the above.

This practice should be applied periodically to maintain the desired early successional plant community.

Where planting is required, native regionally adapted plant materials will be used whenever possible.

Management practices and activities are not to disturb cover during the primary nesting period of May 1 –

August 1 for grassland species. Exceptions will be allowed for periodic burning or mowing when necessary to maintain the health of the plant community. Mowing may be needed during the plant establishment period to control weeds.

Measures must be provided to control noxious weeds and other invasive species.

To benefit insect food sources for grassland nesting birds, spraying or other control of noxious weeds will be done on a “spot” basis to protect grasses, forbs and legumes that benefit native pollinators and other wildlife.

Criteria for Grassland Management

Apply this component to develop and maintain brushland and grassland habitats in prairie, transition and forest areas. This practice improves habitat for certain target species such as greater prairie chicken, sharp-tailed grouse, woodcock, waterfowl, and other grassland nesting birds. Areas may be developed or maintained by one or a combination of the following methods:

1. Mechanical (mowing or light disking)

Used alone or in combination with other techniques, mechanical methods can successfully manipulate successional stages of habitat. See practice standards 645–Upland Wildlife Habitat Management and 643–Restoration and Management of Declining Habitats for additional information.

Mechanical disturbance should be done prior to the primary nesting season (May 1) or between August 1 - September 1 to protect ground nesting wildlife.

Annual mechanical disturbance or disturbance of entire stands is discouraged since it greatly increases mortality, and reduces residual cover available for the following nesting season.

A. Mowing:

- Where possible, manage no more than 50% of the stand in any given year in 4-5 year increments, or in strips to maintain cover. Rotate mowed strips across the field. Mow cool season

NRCS-Minnesota
August 2005

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact the MN Natural Resources Conservation Service in your area, or download it from the [electronic Field Office Technical Guide](#) for Minnesota.

grasses no shorter than 6". Native warm season grasses should be mowed no shorter than 10".

- Strip mowing can be applied in the spring prior to the nesting season to encourage vegetative diversity without greatly impacting ground nesting activities or loss of fall food plants.
- Minimum standing strip width shall be 100'.

B. Light Disking:

- Light disking of existing stands, typically greater than 4 years old, may be necessary to increase the amount of open ground and encourage a diverse plant community of annuals and perennials. Maintain a minimum of 30%-50% residue cover after disking.
- Alternate disked strips of <75' in width, with standing buffer strips a minimum 2 times the disked width, across the field on the contour or across slope.
- Rotate the disked strips across the field.

2. Prescribed Grazing

Domestic livestock may be used to manipulate plant succession. This manipulation may be beneficial to maintaining the quality of herbaceous cover, and controlling brush when done in accordance with a prescribed grazing plan with wildlife as the primary objective.

This technique requires very careful management to assure the site is not over grazed.

Do not recommend this technique unless assured that the land user fully understands the grazing system, and is capable of managing the system. A grazing plan should be developed at a "light grazing intensity". See practice standard 528-Prescribed Grazing.

3. Prescribed Burning

If the area is not mowed or grazed, grass stands may need periodic renovation to remove excess litter which may reduce the quality of wildlife habitat.

Controlled fire can allow germination of seed bearing annuals, increase plant species diversity, control unwanted woody vegetation, and open up the stand for movement of small animals and birds.

Frequency of burning should generally not exceed once every 4-5 years, although brushland burns may initially need to be more frequent.

Fall burns and early spring burns tend to favor forbs.

Late spring burns provide maximum stimulus to warm season plants and work well to control cool season grasses and brush.

See practice standard 338-Prescribed Burning for more information including restrictions.

4. Chemicals

Selected herbicides can be used to effectively manipulate plant succession, control brush, reduce plant competition, control exotic weeds, and improve habitat diversity.

Careful planning and care in application are required in the use of chemicals to improve existing habitat. Selection of a product shall be based on several factors, including: (a) product effectiveness, (b) non-target species impacts, (c) toxicological risks, and (d) off-site movements of chemicals.

Chemicals are to be applied only for the uses listed on the container label. Follow all directions and precautions. See practice standard 595-Pest Management for recommendations and precautions.

Criteria for Forest Openings

Apply this component to construct new opening areas or maintain existing openings in forested areas to improve habitat for species which utilize and benefit from openings. Forest openings may also include log landings, skid trails, roadsides and utility rights-of-way.

Forest openings furnish open space necessary for young birds to sun themselves, singing grounds, and provide a steady vegetative and insect food supplies.

1. General

The recommended size of openings varies by species requirements. Forest openings generally range from 0.5 acres to 10.0 acres. Forest openings of 1-3 acres are typically desirable. Woodland sites <40.0 acres in size generally will not benefit from openings.

Caution should be exercised when proposing forest openings in woodland sites larger than 250 contiguous acres in size. Forest openings in this situation should not exceed 1.0 acre, since large openings may lead to habitat fragmentation for non-target interior nesting species resulting in increased predation and nest parasitism. Consult with the MN DNR Area Wildlife Manager or Non-game Wildlife Specialist for recommendations.

A number of scattered openings are more beneficial than a single large opening of comparable size. Forest openings scattered throughout a forested area create greater diversity, and benefits a variety of wildlife other than game species.

South facing slopes are preferred since these areas tend to remain free of snow for a longer time in the spring and fall.

2. Forest openings may be developed by one, or a combination of the following methods:

- Mechanical: including hand cutting, shearing, hydro-axe, disking, and other techniques.
- Chemical including broadcast, spot, custom treatments or basal spraying. Refer to safety precautions listed under grassland management.
- Prescribed Burning.

3. Establishment

Prepare a clean seedbed, double or triple disk. If brush or stumps have been removed, they should be burned or buried rather than piled.

Apply lime and fertilizer according to soil test recommendations. Broadcast and drag seed. Refer to practice standard 327–Conservation Cover for appropriate seeding dates.

A nurse crop of oats may be used to provide cover and food the year of establishment.

Forest Opening Seeding Recommendations

Species	Seeding Rate (lb/ac)
Wt. Clover	4.0
Red Clover	3.0
Alsike Clover	2.0
Kentucky Bluegrass	1.0
Red Fescue	1.0
Timothy	1.0

12.0

Note: Orchard grass or Redtop grass may be substituted for the above grass component.

Forest openings can also be established by maintaining native shrub and forb vegetation by mowing, shearing, and felling of trees. Favor areas with a high abundance of low fruit bearing shrubs like blueberry or forb dominated sites.

4. Maintenance

Clover is relatively short lived and will decrease within 3-5 years without maintenance. If woody vegetation encroachment comprises more than 10% of existing openings, woody vegetation should be controlled to help maintain grass and clover components. Maintain the site by: 1) mowing, 2) burning, or 3) light disking every 2-3 years.

Once clover becomes scarce, a decision should be made whether to continue maintenance of the site or re-establish.

Criteria for Brushland and Browse Management

Apply this component to provide browse in forest and transition habitats to benefit moose, deer and other wildlife.

Manipulation of woody tree and shrub stands to achieve early successional plant composition encourages regrowth and regeneration (suckering) of palatable and nutritious vegetation beneficial to large mammals. Browse management also increases plant diversity which supports a variety of other species.

Browse management may be accomplished by one or a combination of the following:

- A. Mechanical: including shearing, mowing, hand cutting, hydro-axe, or other approved techniques.
 - Shearing is best accomplished in winter when the ground is frozen.
 - For mechanical treatment, maximum regrowth (suckering) is achieved when cut during the dormant season (October – March).
- B. Chemical: including broadcast, spot, custom or basal treatments. Refer to safety precautions listed under grassland management.
- C. Prescribed Burning.

Criteria for Timber Harvest

Timber harvests can be planned to provide early successional habitat. The types of forest stands, their age classes, and how they are arranged determines which wildlife species will benefit. Consult with a MN DNR Forester and Wildlife Manager for assistance in designing timber harvests.

The Minnesota Forest Resource Council's Voluntary Site-Level Forest Management Guidelines should be applied during timber harvest and road construction

Seed logging roads and landings according to criteria for forest openings.

1. Harvesting Methods

- A. Clear Cutting: The removal of most trees on a site. This method is used to regenerate shade intolerant species such as Aspen, Oak, Birch and Jack Pine. This method benefits game species such as deer, ruffed-grouse and woodcock as well as non-game birds such as golden winged warblers.
 - Make cuts an irregular shape with ragged edges for deer. Narrow east-west oriented strip cuts also benefit woodcock, especially

sites with an abundance of shrubs such as alder.

- Make cuts in small blocks to benefit ruffed-grouse.
 - Leave clumps of mast producing trees and shrubs, conifers and snags standing to provide food, cover and shelter.
- B. Shelterwood Cutting: The removal of 40-60% of trees to open the forest canopy and allow more light to reach the forest floor. The remaining trees are usually harvested 5-10 years later. This method prompts the growth of grasses, shrubs and seedlings in the understory.
 - C. Group Selection: This method typically incorporates smaller clearcuts of 0.5 to 5.0 acres in size. It is often used to regenerate oak forests.
 - Minimum size of such cuts should be no less than 2X the height of surrounding trees to allow adequate sunlight to the forest floor.
 - After harvest, the control of undesirable tree species may be necessary to encourage oak regeneration.

CONSIDERATIONS

All habitat manipulations will be planned and managed according to soil capabilities and recommendations for management will avoid excessive soil loss. See MFRC Site Level Guidelines regarding soil productivity during forest management operations.

Early successional treatments should be placed in a specific planned special arrangement. This specific arrangement is dependent upon the habitat objective and desired species.

Treatment shall be accomplished whenever succession has gone past the desired stages.

Design and install the treatment layout to best facilitate operation of all machinery used on the strips or to make easily controlled burning boundaries. Whenever possible, lay out strips to have some multiple or full width passes by all farm implements.

Grazing may be used as a management tool to achieve the intended purpose of this practice. A grazing plan is required.

This practice may be used to promote the conservation of declining species, including threatened and endangered (plant, wildlife or aquatic) species.

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each site. Specifications shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

NRCS staff is encouraged to work closely with the NRCS Biologist, USFWS Biologist or MN DNR Area Wildlife Manager in developing site specific plans and specifications. These documents are to specify the requirements for installing the practice, such as the kind, amount or quality of materials to be used, or the timing or sequence of installation.

OPERATION AND MAINTENANCE

An operation and maintenance plan shall be developed that is consistent with the purposes of this practice, its intended life, and the criteria for its design.

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance).

Any use of fertilizers, pesticides and other chemicals to assure early successional management shall not compromise the intended purpose.

This practice will be inspected periodically and restored as needed to maintain the stated purpose. Additional operation and maintenance requirements will be developed on a site specific basis to assure performance of the practice as intended.

REFERENCES

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